REMARKS

Withdrawal of the final rejection, and favorable reconsideration and allowance of the present application based on the following remarks are respectfully requested.

At the outset, it has been observed that Applicants' file for the subject application indicates that in the Appendix of the previously filed Amendment, the marked up versions of claims 1, 5 and 6, were missing. Accordingly, the Appendix attached hereto, shows the changes previously presented in the Amendment filed August 9, 2002, as well as the changes to claim 15 made by this Amendment.

Claims 1-20 remain pending and further examination and reconsideration is requested. Claim 15 has been amended to add carbon black as a carrier. Support for the claim amendment can be found in the specification as filed, e.g., on page 4, line 7. Since patentability of the claimed subject matter is not dependent on the particular carrier, this amendment does not raise any new issues for consideration or search.

Reconsideration of the rejection of claims 1-8 and 15-17 as fully anticipated by Wolff *et al.* (U.S. Pat. No. 5,159,009) is respectfully requested for at least the following reasons.

It is the Examiner's position that the failure of Wolff *et al.* to describe or exemplify the claimed organosilanes is not fatal to the lack of novelty rejection.

Applicants respectfully disagree.

(1) Since the rubber compositions of Wolff *et al.* include carbon black modified by (i.e., reacted with) organosilane and since there is no disclosure of free organosilane or organosilane merely supported on a carrier, the disclosure of Wolff *et al.* does not and cannot anticipate the subject matters of the pending claims, irrespective of the organosilane compound. (claim drawn to "mixed with" what happens after is irrelevant — product by process)

That is in Wolff *et al.*, because the organosilane is reacted with carbon black when the modified carbon black is added to rubber, an organosilane of formula (I) will not be present. Only a modified organosilane of one of the formulae (I), (II), or (III) of Wolff *et al.* would be present in the rubber.

(2) In addition, even if the Examiner is correct that silicic acids are merely hydrated forms of silica and that unless the silica is expressly anhydrous, silica and silicic acid are synonymous, the disclosure by Wolff *et al.* of silicas and silicates in column 3, line 44, is merely as a filler and not as a carrier or support for the organosilane. It is only carbon black

→ silica treated CB is used b/c CB does not "react" with w/ silica coupling agents - cf. patent (Mahmud)

→ prof for adsorptive phenomena -

that is disclosed as carrier or support for the organosilane (i.e., carbon black modified by organosilane).

However, with all due respect, Applicants do not agree that unless silica is expressly stated to be anhydrous, those skilled in the art, recognize silica and silicic acid to by synonymous. While anhydrous silicic acid may be equivalent to silica, silicic acid is not anhydrous. Similarly, while hydrated silica may be equivalent to silicic acid, there are many other forms of silica (e.g., colloidal, aerosol, precipitated, gel, etc.), which are not synonymous with silicic acid.

If the Examiner maintains this rejection, he is kindly requested to provide evidence to support the mere assertion of equivalency between the disclosed silica and the claimed silicic acid.

One skilled in the art would not have any reason to expect that silica filler for rubber refers to hydrated silica or, conversely, does not refer to anhydrous silica.

In addition, while it may be agreed that within structure (I) of the three structural formulae (I), (II) and (III), shown in columns 1 and 2, Wolff *et al.*'s broad disclosure may encompass, by fortuitous selection, among the nine variable parameters, R^1, n, R, (Alk), m, Ar, p, q and B, compounds corresponding to the organosilanes of structure (I) in the present application. That is not, however, enough information or detailed description to amount to a disclosure of the subject matter being claimed in the present application. This is true, notwithstanding the general similarities in the definitions of the group "B" or the groups "R" and "R^1".

Even if, for example, R or R^1 is selected as C_{1-4} – alkyl and if B is chosen to be –SCN, –SH, –Cl, or (when q = 2) $-S_x-$, this would still not result in a compound meeting the structural requirements imposed in structure (I) of the present claims. It would still be necessary, for example, that R, $R^1 \neq$ phenyl; $n \neq 0$ (whereas n = 0 in <u>all</u> of the examples in the patent), $m \neq 0$; and p = 0.

As explained in the Manual of Patent Examining Procedure, MPEP 2132.02, under the heading "**A GENERIC CHEMICAL FORMULA WILL ANTICIPATE A CLAIMED SPECIES COVERED BY THE FORMULA WHEN THE SPECIES CAN BE 'AT ONCE ENVISAGED' FROM THE FORMULA**"

> "[w]hen the compound is not specifically named, but instead it is necessary to select portions of teaching within a reference and combine them, e.g., select

various substituents from a list of alternatives given for placement as specific sites on a generic chemical formula to arrive at a specific composition, anticipation can only be found if the classes of substituents are sufficiently limited or well delineated (citation omitted). If one of ordinary skill in the art is able to 'at once envisage' the specific compound within the generic chemical formula, the compound is anticipated. One of ordinary skill in the art must be able to draw the structural formula or write the name of each of the compounds included in the generic formula before any of the compounds can be 'at once envisaged.' One may look to the preferred embodiments to determine which compounds can be anticipated. *In re Petering,* 301 F.2d 676, 133 USPQ 275 (CCPA) 1962)." (Emphasis added) (MPEP 2100-71, August 2001).

In the present case, noting that the only exemplified, hence, preferred embodiments are the "trialkoxy" derivatives, whereas trialkoxy derivatives are explicitly excluded from the present claims, and noting that the instant class of organosilane compounds of structural formula (I), would not be "at once envisaged" from the structural formulas given in the Wolff *et al.* disclosure, it is again respectfully submitted that the reference disclosure is not anticipatory of the subject matter being claimed by Applicants.

Furthermore, dependent Claims 2-8 are additionally distinguishable over the disclosure of Wolff *et al.*

- Claim 2: In view of the exemplification of only "trialkoxy" derivatives the subject matter of "monoalkoxy" derivatives is even more remote from the disclosure of Wolff *et al.* Therefore, claim 2 is not anticipated for this additional reason.
- Claim 4: There is no disclosure of a mixture of organosilanepolysulfane and organoalkylsilane. The Examiner has not addressed Applicants' assertion regarding this claim. Therefore, claim 4 is not anticipated by Wolff *et al.* for this additional reason.
- Claim 5: This claim is directed to a particular embodiment of the organosilanes of structural formula (I). There is no disclosure of compounds wherein R^1 is ethoxy or methoxy; R^2 and R^3 are methyl; R^4 is propylene or isobutylene and Z is S_x-R^4-Si$R^1R^2R^3$. Therefore, claim 5 is not anticipated for this additional reason. One skilled in the art would certainly not immediately (or at all) envisage compounds with the structural formula (I) according to this particular embodiment of Applicants' invention.

- Claim 6: Similarly, this claim is directed to still another particular embodiment of the organosilane compounds of structural formula (I) and there is no disclosure by Wolff *et al.* of a compound in which R^1 = ethoxy or methoxy; $R^2 = R^3$ = methyl and $R^4 = (C_1\text{-}C_{18})$ divalent hydrocarbon. Therefore, claim 6 is not anticipated by the disclosure of Wolff *et al.* for this additional reason.
- Claims 7 and 8: As discussed above, the disclosure of Wolff *et al.* does not describe rubber mixtures that include silicic acid as filler. Claims 7 and 8, therefore are not anticipated by Wolff *et al.* for this additional reason.

Still further, as noted above, Wolff *et al.* do not describe the organosilanepolysulfanes or mixtures with alkylsilanes, which are recited in claims 7 and/or 8, and also in claims 16 and 17. Therefore, claims 7, 8, 16, and 17 are not anticipated by Wolff *et al.*

For all of the above reasons, withdrawal of the rejection of claims 1-8 and 15-17 as anticipated by Wolff *et al.* is requested.

Reconsideration and withdrawal of the final rejection of claims 9-14, and 18-20 under 35 U.S.C. 103(a) as unpatentable over Wolff *et al.* in view of Takeichi (U.S. Pat. No. 6,008,295) is respectfully requested.

As described above, Wolff *et al.* do not disclose rubber mixtures according to claims 1-8 and 15-17. Therefore, since claims 9-14 depend, directly or indirectly on claim 1, and claims 18-20 depend, directly or indirectly on claim 15, the subject matters of claims 9-14 and 18-20 would not have been obvious over the combined disclosures, even assuming proper motivation for combining these references. That is, regardless of the disclosures in Takeichi relating to tire treads, molding, etc., there is no disclosure that would motivate the practitioner to make such products using the organosilane compounds of structural formula (I) as set forth in these claims.

In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any point remains in issue that the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Attached is a marked-up version of the changes made to the specification and claims by the previous amendment and apparently not previously shown in marked-up form. The attached Appendix is captioned **"Version with markings to show changes made"**.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

1. (Amended) Rubber mixtures, comprising organosilanes of the general structure

$$R^1R^2R^3Si\text{-}R^4\text{-}Z \qquad (I)$$

wherein R^1, R^2 and R^3 independently of one another are H, $(C_1\text{-}C_4)$alkyl, $(C_1\text{-}C_4)$alkoxy or halogen and the number of alkyl groups is ≥ 1; R^4 is a linear or branched $(C_1\text{-}C_{18})$ **[alkylidene]** divalent hydrocarbon group; and Z = H, halogen, SCN, SH or $S_x\text{-}R^4\text{-}SiR^1R^2R^3$, where x is 2 to 10.

5. (Amended) Rubber mixtures according to Claim 4, wherein the **[organopolysulfanesilane]** organosilanepolysulfane is a silane in which:

R^1 = ethoxy or methoxy, R^2 = R^3 = methyl, R^4 = propylene or isobutylene and Z = $S_x\text{-}R^4\text{-}SiR^1R^2R^3$, where x has a statistical mean value of 2 to 4.

6. (Amended) Rubber mixtures according to Claim 1, wherein the **[organoalkylsilane]** organosilane is a silane in which:

R^1 = ethoxy or methoxy, R^2 = R^3 = methyl and R^4 = linear or branched $(C_1\text{-}C_{18})$ **[alkylidene]** divalent hydrocarbon group.

15. (Amended) A rubber mixture comprising rubber and organosilane of formula (I)

$$R^1R^2R^3Si\text{-}R^4\text{-}Z \qquad (I)$$

wherein R^1, R^2 and R^3 independently of one another are H, $(C_1\text{-}C_4)$alkyl, $(C_1\text{-}C_4)$alkoxy or halogen and the number of alkyl groups is ≥ 1; R^4 is a linear or branched$(C_1\text{-}C_{18})$ divalent hydrocarbon group; and Z = H, halogen, SCN, SH or $S_x\text{-}R^4\text{-}SiR^1R^2R^3$, where x is 2 to 10;

wherein the organosilane is mixed with the rubber in unsupported form or supported on a carrier selected from the group consisting of silicic acids, natural silicates, synthetic silicates, **[and]** aluminum oxide, and carbon black.

End of Appendix